

REMARKS

Applicants are filing a RCE herewith to affect entry of Amendment (B) filed January 4, 2006 and this Amendment (C) in the above-identified application. Accordingly, it is respectfully submitted that these amendments should be entered and considered at this time.

Applicants are amending each of the independent claims to recite performing heat treatment to ..." (e.g. the gate electrode in Claim 1).

Applicants will address each of the Examiner's objections and rejections, including the Examiner's comments in the Advisory Action, in the order in which they appear in the Final Rejection.

Specification

In the Final Rejection, the Examiner objected to the Abstract and requested that "reduces" be changed to "reduced." Applicants amended the abstract as requested by the Examiner in Amendment (B). In the Advisory Action, the Examiner states that this amendment overcomes the Examiner's objection. Accordingly, it is respectfully request that this objection be withdrawn.

Claim Rejections - 35 USC §103

Claims 13, 16, 17, 20, 21 and 24

The Examiner also rejects Claims 13, 16, 17, 20, 21 and 24 under 35 USC §103(a) as being unpatentable over Ogawa et al. (US 6,362,507) in view of Jacobson et al. (US 6,294,401). This rejection is respectfully traversed.

Independent Claims 13, 17 and 21 recite forming a pixel electrode over the substrate by discharging a second conductive material (Claim 13); forming a plurality of pixel electrodes arranged

in a matrix form over the substrate by discharging a second conductive material (Claim 17); and forming a plurality of pixel electrodes arranged in a matrix form over the substrate by discharging a second conductive material (Claim 21). By forming the pixel electrode by the claimed discharging process, the pixel electrode can be selectively formed for each pixel. As a result, a photolithography step is not required after forming the pixel electrode. Therefore, the manufacturing cost for a semiconductor device can be reduced, manufacturing time can be shortened, and manufacturing steps simplified.

In contrast, as the Examiner admits in the Final Rejection, Ogawa discloses that the pixel electrode is formed by a sputtering method, instead of by discharging conductive material. With such a sputtering method, the lower level is susceptible to damage. However, by forming the pixel electrode by the claimed discharging method, such damage can be suppressed. This is advantageous over the sputtering method of Ogawa. Neither Ogawa nor Jacobson disclose or suggest this advantage.

In the Advisory Action, the Examiner contends that Jacobson teaches “a discharge method to form a gate electrode, an insulating layer, a semiconductor layer, and a source/drain layer.”

Jacobson, however, does not disclose or suggest forming a pixel electrode by discharging conductive material, as recited in independent Claims 13, 17 and 21. Hence, the cited references do not disclose or suggest the claimed method.

While the Examiner contends that this feature would have been obvious in view of the disclosure in Jacobson, and argues that Jacobson “states that the discharge method can be used to deposit layers ‘that may serve as conductive, semiconductive, or insulating layers, chemically active layers, or as etch resists, light barriers, diffusion barriers, passivation layers, encapsulants, or structural supports.’” However, this statement does not indicate that the discharge method in

Jacobson can be applied to a pixel electrode. In fact, it is respectfully submitted that Jacobson does not indicate anywhere in the reference that the discharge method of Jacobson can be used for a pixel electrode. Further, there is nothing in Jacobson, nor does the Examiner mention anything, regarding how to apply the discharge method of Jacobson to a pixel electrode.

In the present invention, a conductive material such as a compound of indium oxide and tin oxide, a compound of indium oxide and zinc oxide, zinc oxide, tin oxide, indium oxide and titanium oxide is dissolved or dispersed in a solvent, and the dispersion material discharged. However, Jacobson does not disclose these materials or that these materials are used for the pixel electrode.

Accordingly, Applicants respectfully submit that one skilled in the art cannot obtain the formation of a pixel electrode by the discharging method of Jacobson. Further, it is not proper to apply the discharging method of Jacobson for forming the gate electrode and the source/drain electrode to a process for forming a pixel electrode. Therefore, it is not proper to apply the discharging method of Jacobson to the formation of the pixel electrode of Ogawa.

Hence, the cited references fail to disclose or suggest the claimed invention. Accordingly, it is respectfully submitted that independent Claims 13, 17 and 21 and those claims dependent thereon are patentable over the cited references, and it is requested that this rejection be withdrawn.

Claims 14, 15, 18, 19, 22 and 23

The Examiner also rejects Claims 14, 15, 18, 19, 22 and 23 under 35 USC §103(a) as being unpatentable over Ogawa et al. in view of Jacobson et al. and further in view of Speakman (US 6,713,389). This rejection is also respectfully traversed.

Each of these claims is a dependent claim. Therefore, for at least the reasons discussed above for the independent claims, these claims are also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 25, 28-32, 35-39, 42-46 and 49-52

The Examiner also rejects Claims 25, 28-32, 35-39, 42-46 and 49-52 under 35 USC §103(a) as being unpatentable over Yamazaki et al. (JP 2001-052864) in view of Jacobson et al. This rejection is also respectfully traversed.

Independent Claims 25, 32, 39 and 46 recite forming a first electrode over the source and drain wirings by discharging a third conductive material (Claims 25 and 32); and forming a plurality of first electrodes arranged in a matrix form over the plurality of source and drain wirings by discharging a third conductive material (Claims 39 and 46).

In contrast, while Yamazaki discloses forming an electroluminescent layer by using a discharging method, Yamazaki discloses forming the gate and wiring layers by sputtering. Hence, Yamazaki does not disclose or suggest forming a first electrode or plurality of first electrodes by using a discharging method as in independent Claims 25, 32, 39 and 45.

For at least the reasons discussed above, Jacobson also does not disclose or suggest forming a first electrode by using a discharging method. Hence, the cited references do not disclose or suggest the claimed method.

Accordingly, it is respectfully submitted that independent Claims 25, 32, 39 and 42 and those claims dependent thereon are patentable over the cited references, and it is requested that this rejection be withdrawn.

New Claims

Applicants are also adding new dependent Claims 53-66.

Claims 53-59 recite that the second or third conductive material is dissolved or dispersed in a solvent. This is supported by, for example, page 16, lns. 14-15 and page 25, lns. 4-5 of the present application.

Claims 60-66 recite that the pixel electrode or first electrode comprises at least one material selected from the group consisting of a compound of indium oxide and tin oxide, a compound of indium oxide and zinc oxide, zinc oxide, tin oxide, indium oxide and titanium oxide. This is supported by, for example, page 16, lns. 7-10 of the present application.

Each of these claims is allowable over the cited references for at least the reasons discussed above for the independent claims.

If any fee should be due for these new claims, please charge our deposit account 50/1039.

Conclusion

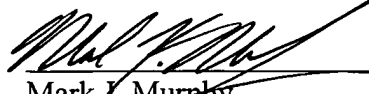
Accordingly, it is respectfully submitted that the present application is in a condition for allowance and should be allowed.

If any fee should be due for this amendment or new claims, please charge our Deposit Account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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